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This is the author's manuscript

Original Citation:

Availability:

This version is available <http://hdl.handle.net/2318/1619444> since 2016-12-08T00:30:43Z

Publisher:

Association for Computing Machinery, Inc

Published version:

DOI:10.1145/2968219.2968331

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(Article begins on next page)

New frontiers of Quantified Self 2: Going Beyond Numbers

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Abstract

While the Quantified Self (QS) community is described in terms of “self-knowledge through numbers” people are increasingly demanding value and meaning. In this workshop we aim at refocusing the QS debate on the value of data for providing new services.

Author Keywords

Personal informatics; quantified self; self-tracking; self-monitoring; wearable technologies.

ACM Classification Keywords

H.5.m. Information interfaces and presentation (e.g., HCI): Miscellaneous.

Introduction

The Quantified Self (QS) movement, also known as Personal Informatics (PI), has the goal to collect personal data on different aspects of people’s daily lives with technological tools [3]. Recently, we have seen increasing complexity in the Quantified Self domain. First, we have *more data being collected*, thanks to the availability of an increasing number of apps and wearables for self-tracking. There are *also more types of information* to be combined, as activity recognition algorithms are now able to recognize a variety of behaviors and activities that can be mashed up and provide multifaceted views on the user. This provides

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Relevant Workshop Topics

Relevant workshop topics include but are not limited to:

- i) Novel technologies for self-tracking;
- ii) Mash-up platforms;
- iii) Novel visualizations of personal data;
- iv) Methodologies and technologies for transforming data into knowledge;
- v) Novel methods and tools for making sense of data;
- vi) Novel applications and services enabled by personal data;
- vii) Thought-provoking insights on how to refocus QS technologies on the individual's subjectivity;
- viii) Theoretical reflections on how QS technologies could evolve in the future;
- ix) Methodologies for evaluating the subjective experience of QS applications;
- x) Use cases that investigate the effectiveness of novel solutions for QS.

new opportunities for the use of large collections of digital traces, which can go beyond behavior change for exploring new personalized services in education, entertainment, transportation and so on. Despite this growing complexity, the Quantified Self still lacks a discussion on what all these personal data gathered could represent for users, what meaning they may have, and value they may provide. It seems that the current debate is framed as "knowledge through numbers", where individuals gain a better understanding of themselves by rationally analyzing a huge amount of quantitative information, and then acting in light of this renewed self-knowledge. This model, based on the practices of Quantified Selfers, addresses the needs of just a minority of a constantly growing user base of self-trackers. This narrows the vision and the potential that QS technologies could provide in the coming years. We think that this point of view does not account for the ways that most people use information and how they integrate it into their everyday life. We thus see it as necessary to start rethinking how QS should be conceived. Our previous successful organization of PI/QS workshops (e.g. CHI 2010-13, UbiComp 2014-15) has resulted in a large and unexpected number of papers (20 accepted papers) in the first edition at UbiComp '15. However, the conversation has largely been focused on the *collection* and *use* of personal data. In this new edition of the New Frontiers of Quantified Self workshop, we want to investigate how to go beyond the collection challenges of QS. Our aim is to explore how QS could help people make sense of their own personal information in the future. We see important potential benefits from a workshop that enables UbiComp and ISWC researchers to focus on these issues. Sharing insights and possible solutions on how to add value to

the increasing amount of personal data may lead to novel designs and theoretical reflections that could drive research on self-tracking technologies in the future.

Workshop Motivation

The current debate of Quantified Self and Personal Informatics is still dominated by an emphasis on numbers, where the value relies in how the examination of quantitative information may address real needs, such as a change in behavior. This perspective, which is core to the first and most common model of PI by Li et al. [2], focuses on the modification of behaviors that follows from a rational analysis of the data collected by self-tracking tools. The reasoning is that this may provide users with self-awareness based on objective insights (i.e. the examined numbers). However, recently this model has been called into question. Rooksby et al. [4] note how self-trackers may have a variety of different reasons for tracking when tools are integrated in their everyday life. Here, behavior change may not be the primary goal. Instead, people may be collecting rewards, following an interest in technology, and documenting activities. These are all valid motivations for use of PI in daily life. On the basis of these observations they argue for a description of people's real practices when tracking data, pointing out that they use information and find its meaning in their day-to-day lives. Following their suggestions, Epstein et al. [1] proposed a new model of PI, capable of accounting also for those users who track for reasons other than changing behavior. This work opened the way to go beyond the focus on behavior change and numbers that still dominates the rhetoric of QS and PI.

Objectives

We aim to provide a shared forum for researchers and practitioners interested in QS, particularly those who are looking for new inspirations for designing systems capable of involving a larger audience of users, which may go beyond the Quantified Selfers and expert self-trackers.

A multidisciplinary space will be valuable for refocusing QS technologies on the notion of the “self” and on the subjective value that personal data may have for their users. The long-term objective of the workshop is to support a community interested in sharing ideas on QS and PI. This includes researchers coming from different areas, from engineers and computer scientists, to designers, social scientists, ethnographers and psychologists. perspectives.

In this second edition of New Frontiers of Quantified Self Workshop, we want to build upon previous workshops by exploring how we can put in the spotlight the subjective side of QS. We claim that we need to bring QS and PI back to their original ambition, providing self-awareness and self-knowledge. It may be beneficial to reframe QS in terms of the value that the data collected may have for different individuals. Doing so may make self-tracking technologies appeal to people who are not focused on quantification, but rather are simply interested in discovering something about themselves. For this aim, it is necessary to start rethinking i) how QS technologies can enable users to make sense of their personal data, ii) how data can be better and more easily be combined to provide users with a more comprehensive image of themselves, iii) how this information can be analyzed and visualized for producing meaningful insights, going beyond the analysis of numbers, iv) how data collected could gain value by improving user’s self-knowledge and providing users with new services.

To summarize, we are looking to encourage: i) Novel technologies for gathering data, capable of detecting new aspects of the individual’s life (e.g., cognitive states, social activities, habits); ii) Novel solutions for mashing-up heterogeneous sources of personal data to provide users with a multifaceted mirror of themselves; iii) Solutions for mining personal data to find new knowledge (e.g. machine learning techniques, data mining); iv) Novel ways to engage users in exploring their data and in extracting value from them (e.g., through sense-making, storytelling, gamification); v) Novel visualizations for easing the sense making of the collected data, going beyond graphs and stats and allowing experiences to emerge from numbers; vi)

Novel applications that exploit the increasing amount of personal data for improving users’ self-knowledge or providing them with new valuable services (e.g., through targeted recommendations, adaptive interfaces).

Important dates

Deadline for submissions: 7th June

Response to authors: 28th June

Camera ready submission deadline: 5th July

Workshop day: 13th September

Short Bio of the Organizers

Amon Rapp. Research fellow at Computer Science Department of the University of Torino, where he directs the Smart Personal Technology Lab. His research areas are Quantified Self and behavior change technologies, investigated from an HCI perspective.

Federica Cena. Assistant Professor at the Department of Computer Science of the University of Torino. She is currently the head of Smart Society Lab at the Center for Innovation for the Territory. She is working on user modeling and personalization, with a special focus on the implications of IoT for user modeling.

Judy Kay. Professor of Computer Science at the University of Sydney, Australia. She heads the Human Centred Technology priority research cluster. Her primary research focus is on surface computing and infrastructures for managing personal data with the user in control. Key applications are in life-long and life-wide learning, with data supporting metacognitive processes, including reflection and goal setting.

Bob Kummerfeld. Associate Professor of Computer Science at the University of Sydney, Australia. His research is mainly on systems for the management of User Model data as well as novel interfaces for gathering and managing personal data.

Frank Hopfgartner. Lecturer in Information Studies at University of Glasgow. His research to date can be placed in the intersection of information retrieval, recommender systems, and data analytics. He co-organized various workshops on heterogeneous sensor data, Quantified Self and Lifelogging (e.g., at ICME, UMAP, Hypertext, BIBM) and is chair of Lifelog, a pilot task for the evaluation of lifelogging and retrieval techniques at NTCIR-12.

Till Plumbaum. Director of the Competence Center Information Retrieval and Machine Learning at DAI-Labor, TU Berlin. He has chaired a number of workshops on user behavior and lifelong user modeling. His main research interest is on understanding and modeling human behavior with a current focus on lifelogging and personal informatics.

Jakob Eg Larsen. Associate Professor in Cognitive Systems at the Technical University of Denmark, Dept. of Applied Mathematics and Computer Science, where he heads the Mobile Informatics and Personal Data Lab. He has chaired several workshops on personal informatics and quantified self. His research interests include HCI, personal data interaction, personal informatics and quantified self.

Daniel A. Epstein. PhD Student in Computer Science & Engineering at the University of Washington and a member of the DUB group. He studies the design of

personal informatics and self-tracking tools to integrate into people's everyday lives through surveying people's ongoing practices and implementing new technology.

Rúben Gouveia. PhD student at Madeira Interactive Technologies Institute. He has focused his research on understanding how individuals engage with personal informatics tools in their daily lives. He attempts to leverage on such insights towards predicting and personalizing moments of engagement.

References

1. Daniel A. Epstein, An Ping, James Fogarty, and Sean A. Munson. 2015. A lived informatics model of personal informatics. In *Proceedings of the 2015 ACM International Joint Conference on Pervasive and Ubiquitous Computing (UbiComp '15)*, 731-742. DOI=<http://dx.doi.org/10.1145/2750858.2804250>
2. Ian Li, Anind Dey, and Jodi Forlizzi. 2010. A stage-based model of personal informatics systems. In *Proceedings of the SIGCHI Conference on Human Factors in Computing Systems (CHI '10)*, 557-566. <http://doi.acm.org/10.1145/1753326.1753409>
3. Alessandro Marcengo and Amon Rapp. 2014. Visualization of Human Behavior Data: The Quantified Self. In *Innovative Approaches of Data Visualization and Visual Analytics*, Mao Li Huang, and Weidong Huang (Eds.). IGI Global, Hershey, PA, 236-265. doi:10.4018/978-1-4666-4309-3.ch012
4. John Rooksby, Mattias Rost, Alistair Morrison, and Matthew Chalmers Chalmers. 2014. Personal tracking as lived informatics. In *Proceedings of the 32nd annual ACM conference on Human factors in computing systems (CHI '14)*, 1163-1172. <http://doi.acm.org/10.1145/2556288.2557039>.